The Cowrie Fauna of Thailand

BY

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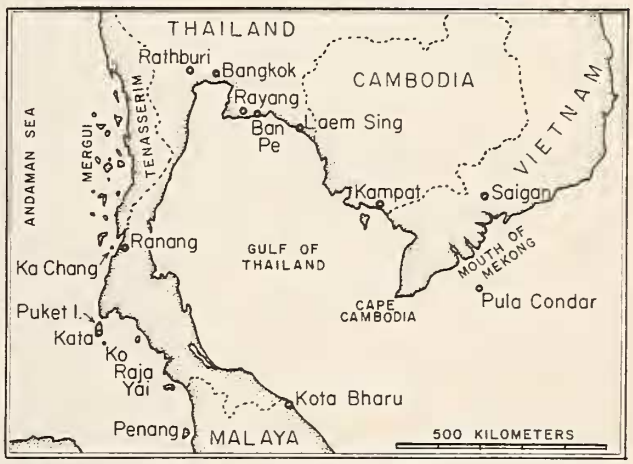
(1 Map)

THE LITTORAL FAUNA of Thailand belongs zoogeographically to two different regions: the west coast of the isthmus connecting the Malay Peninsula with the mainland of Asia belongs, according to SCHILDER, 1965, to the Sumatran region of the Indian province, while the east coast and the entire Gulf of Thailand (formerly Siam) belongs to the Malayan region of the Pacific province. The western littoral of Thailand is the southern half of the area SUM 14t which ranges from Burma to Penang (the latter excluded), while the eastern littoral makes almost the entire area MAL 48g, the south eastern limit of which is the line between Kota Bharu and Cape Cambodia, thus excluding South Vietnam and Pulo Condor (contrary to SCHILDER, 1965, p. 175).

Both areas of Thailand were practically unknown with regard to their cowrie faunas up to the present. Concerning the west coast, MARTENS, 1883, enumerated five species collected at Salanga Island (now called Puket Island); the same author published in 1887 a list of fourteen species of cowries collected by J. Anderson in the Mergui Archipelago (part of the Burmese province Tenasserim), to which list VREDENBURG (1919) added some additional remarks. Concerning the Gulf of Thailand, MORLET, 1889, enumerated 17 cowries from the "Iles du Golfe de Siam", which have been repeated by FISCHER (1891), whereas the lists of cowries from Pulo Condor, published by MABILLE & LE MESLE (1866), ROCHEBRUNE (1882), FISCHER (1891), and DAUTZENBERG & FISCHER (1906) concern the adjacent area MAL 48v (see above).

Later on, still very few cowrie specimens have been collected on the two coasts of Thailand and placed in public and private collections until in 1964 three native collectors in Thailand, living at Ranong (50 miles south of Kra), on Puket Island, and in Bangkok have sent me almost one thousand cowries collected both on the west coast (off Ranong and chiefly at Puket Island) and in the northernmost part of the Gulf of Thailand (chiefly near Rayong) in January and November 1964. Thanks to this eager unselfish collecting of cowrie specimens our knowledge of the cowrie fauna of Thailand has become far less incomplete than before, and the list given by the writer (SCHILDER, 1965) needs several emendations. Therefore the publication of a review on the present status of our knowledge of Thailand cowries seems to be justified.



REVIEW OF THE COWRIE FAUNA

The following list consists of five columns:

The center column indicates the cowrie species suspected, at least, to live in the coasts of Thailand; several footnotes refer to explanatory paragraphs which follow the list.

The two adjacent columns indicate the number of specimens collected in 1964 by the three natives; the sub-columns designate in the

West: R = Ko Chang (Ko means Island) west of Ranong near the border of Burma (Tenasserim); live specimens;

Pf = west coast of Puket Island (often spelled Phuket. Pukhet, Phoket, Bhoket, etc., = Salang Island).

chiefly in its southern part west of the village Kata: fresh live shells taken on rocks and reefs;

Pw = west coast of Puket Island, west of Kata: a bag with worn cowries collected by a native on the beach;

K = Ko Raja Yai (= Great Raja Island) about 15 miles south of Puket Island: live specimens;

East: B = Ban Pe (Ban = village) in the province Rayong about 80 miles south-south-east of Bangkok: worn shells collected on the beach of Ban Pe (about 12 miles east of Rayong); as well in the south west of the village as in the east towards Ban Klaeng Lang (the distance between the two similar beaches is about 4 miles);

L = Laem Sing in the province Chantaburi (50 miles east of Ban Pe): beach shells.

The two outer columns indicate previous records from these areas in papers and collections, as well as from adjacent areas the presence in which makes the occurrence in Thailand possible. The letters refer to the following regions and areas according to SCHILDER (1965, pp. 174 and 175):

West = SUMatran region 14
- a = Andaman Islands, Nicobar Islands
- t^2 = Tenasserim, Mergui Archipelago
- t^6 = coast of Thailand along the Andaman Sea
- m = Malacca Strait from Penang Island to Medan

East = MALayan region 48
- s = Singapore, South West Borneo, Belitong
- g = Gulf of Thailand (Siam) - see above
- v^7 = S. W. Vietnam: S. Cochinchina, Pulo Condor
- v^3 = N. E. Vietnam: Annam, Tonkin, Paracel Isl.
- b = Natuna Island, North coast of Borneo, Tizard Reefs

These letters put in subcolumns refer to previous findings; an asterisk (*) indicates first records in the collections of 1964; a colon (:) indicates the possibility of occurrence which is not yet proved, while a hyphen (-) signifies that the occurrence seems impossible; foreign species and incorrect indications of habitat have been put in parentheses.

Table 1

THE COWRIES OF THAILAND AND ADJACENT AREAS

14				1964					1964		48				
a	t^2	t^6	m	R	Pf	Pw	K	name of the cowrie species	B	L	s	g	v^7	v^3	b
a	:	:	(m)	:	:	:	:	*Mauritia mappa* (LINNAEUS)	:	:	s	:	:	:	b
-	-	-	(m)	-	-	-	-	*Mauritia eglantina* (DUCLOS) [1]	:	:	s	:	:	:	:
a	:	:	:	:	:	:	:	*Mauritia histrio* (GMELIN)	-	-	-	-	-	-	-
a	t^2	t^6	m	10	7	4	10	*Mauritia arabica* (LINNAEUS) [2]	53	2	s	g	v^7	v^3	b
a	:	:	m	:	:	:	:	*Mauritia scurra* (GMELIN)	:	:	s	:	:	v^3	:
a	:	*	m	4	9	:	4	*Mauritia mauritiana* (LINNAEUS)	absent[3]		s	:	:	:	b
a	:	*	:	:	1	1	:	*Talparia talpa* (LINNAEUS)	:	:	:	:	:	:	b
a	t^2	*	m	:	:	:	2[3]	*Cypraea tigris* LINNAEUS	:	:	s	:	:	v^3	b
:	t^2	t^6	:	:	:	1	:	*Lyncina nivosa* (BRODERIP) [4]	-	-	-	-	-	-	-
a	:	*	:	:	:	:	1[3]	*Lyncina argus* (LINNAEUS)	:	:	s	:	:	v^3	b
a	(t^2)	:	m	:	:	:	:	*Lyncina lynx* (LINNAEUS)	:	:	s	g	v^7	v^3	b
a	t^2	*	m	:	4	:	:	*Lyncina vitellus* (LINNAEUS)	:	:	s	g	v^7	:	b
a	:	*	m	:	:	5	:	*Lyncina carneola* (LINNAEUS)	:	:	s	:	v^7	v^3	b
a	:	*	:	:	:	3	:	*Luria isabella* (LINNAEUS)	:	:	s	g	:	v^3	b
a	:	:	:	:	:	:	:	*Pustularia globulus* (LINNAEUS)	:	:	s	:	:	v^3	b
a	:	*	:	:	:	1	:	*Pustularia cicercula* (LINNAEUS)	:	:	s	g	:	:	b
a	:	:	m	:	:	:	:	*Pustularia bistrinotata* SCHILDERS	:	:	s	:	v^7	:	b
:	:	:	:	:	:	:	:	*Pustularia childreni* (GRAY) [5]	:	:	:	:	v^7	:	b
a	:	t^6	m	:	9	118	:	*Monetaria annulus* (LINNAEUS) [6]	rare[3]		s	g	v^7	v^3	b
a	t^2	t^6	m	:	10	9	:	*Monetaria moneta* (LINNAEUS)	rare[3]		s	g	v^7	v^3	b
-	-	-	-	-	-	-	-	*Erosaria labrolineata* (GASKOIN)	:	:	s	:	v^7	:	b
a	:	*	:	:	:	8	:	*Erosaria gangranosa* (DILLWYN)	:	:	s	:	:	:	:
-	-	-	-	-	-	-	-	*Erosaria boivini* (KIENER) [7]	:	:	s	:	(v^7)	:	b
a	:	:	m	:	:	:	:	*Erosaria helvola* (LINNAEUS)	:	:	s	g	v^7	v^3	b

a	:	t[6]	m	13	8	3	:	*Erosaria caputserpentis* (LINNAEUS)	rare[3])		s	g	v[7]	:	b
:	:	:	:	:	:	:	:	*Erosaria poraria* (LINNAEUS) [8])	:	:	:	:	:	:	b
a	t[2]	*	m	:	20	24	4	*Erosaria erosa* (LINNAEUS)	1	:	s	g	v[7]	v[3]	b
-	-	-	-	-	-	-	-	{*Erosaria ocellata* (LINNAEUS)} [7])	-	-	-	-	(v[7])	-	-
-	-	-	-	-	-	-	-	*Erosaria miliaris* (GMELIN)	187	5	s	g	v[7]	v[3]	b
a	t[2]	t[6]	m	:	:	7	1	*Erosaria lamarcki* (GRAY) [8a]) [9])	3	:	:	g	:	:	:
-	(t[2])	-	-	-	-	-	-	{*Erosaria turdus* (LAMARCK)} [10])	-	-	-	-	-	-	-
a	:	*	:	:	:	2	:	*Staphylaea staphylaea* (LINNAEUS)	:	:	s	g	:	:	b
:	:	:	:	:	:	:	:	*Staphylaea limacina* (LAMARCK)	:	:	s	:	:	:	b
a	:	*	m	:	:	3	:	*Nuclearia nucleus* (LINNAEUS)	:	:	s	g	v[7]	v[3]	b
a	:	:	:	:	:	:	:	*Erronea walkeri* (SOWERBY)	1	:	:	*	v[7]	:	:
:	t[2]	:	m	:	:	:	:	*Erronea pyriformis* (GRAY) [11])	1	4	s	*	:	:	:
-	(t[2])	-	-	-	-	-	-	{*Erronea xanthodon* (SOWERBY)} [11])	-	-	-	-	-	-	-
:	:	*	m	:	:	1	:	*Erronea pallida* (GRAY)	23	:	s	*	:	:	:
a	t[2]	:	:	:	:	:	:	*Erronea onyx* (LINNAEUS)	4	:	s	g	v[7]	v[3]	b
-	-	-	-	-	-	-	-	*Erronea ovum* (GMELIN)	:	:	s	:	v[7]	v[3]	:
a	t[2]	*	m	:	:	30	:	*Erronea errones* (LINNAEUS)	269	:	s	g	v[7]	v[3]	b
-	-	-	-	-	-	-	-	*Erronea cylindrica* (BORN)	:	:	s	:	v[7]	:	b
a	t[2]	*	m	:	:	3	:	*Erronea caurica* (LINNAEUS)	:	:	s	g	v[7]	v[2]	b
a	:	:	:	:	:	:	:	*Erronea listeri* (GRAY) [8a])	:	:	:	:	:	:	b
a	:	:	:	:	:	:	:	*Notadusta punctata* (LINNAEUS)	:	:	s	:	:	:	b
a	:	*	:	:	:	1	:	*Palmadusta asellus* (LINNAEUS)	:	:	s	:	v[7]	:	b
a	:	:	:	:	:	:	:	*Palmadusta clandestina* (LINNAEUS)	:	:	:	:	:	:	b
:	t[2]	:	:	:	:	:	:	*Palmadusta saulae* (GASKOIN) [12])	:	:	:	:	:	:	:
a	:	:	:	:	:	:	:	*Palmadusta contaminata* (SOWERBY) [13])	:	:	:	:	(v[7])	:	b
-	-	-	-	-	-	-	-	*Palmadusta lutea* (GMELIN)	:	:	s	:	v[7]	:	(b)
a	:	:	:	:	:	:	:	*Palmadusta ziczac* (LINNAEUS) [14])	:	:	:	:	:	:	:
a	:	:	m	:	:	:	:	*Purpuradusta gracilis* (GASKOIN)	55	1	s	*	v[7]	:	b
a	:	:	:	:	:	:	:	*Purpuradusta fimbriata* (GMELIN) [15])	:	:	:	:	:	:	b
-	-	-	-	-	-	-	-	*Purpuradusta microdon* (GRAY) [15])	:	:	:	:	v[7]	:	b
:	:	:	m	:	:	:	:	*Blasicrura quadrimaculata* (GRAY)	:	:	s	:	v[7]	:	b
-	-	-	-	-	-	-	-	*Blasicrura pallidula* (GASKOIN)	:	:	s	:	:	v[3]	b
a	:	*	m	:	:	2	:	*Blasicrura interrupta* (GRAY)	-	-	-	-	-	-	-
a	:	t[6]	:	:	:	:	:	*Blasicrura teres* (GMELIN) [16])	:	:	:	:	:	:	b
a	t[2]	:	:	:	:	:	:	*Bistolida kieneri* (HIDALGO)	:	:	s	:	v[7]	:	b
a	t[2]	:	m	:	:	:	:	*Bistolida hirundo* (LINNAEUS)	:	:	s	:	v[7]	v[3]	b
a	:	:	m	:	:	:	:	*Bistolida ursellus* (GMELIN)	:	:	s	:	:	:	b
:	:	*	:	:	:	2	:	*Bistolida stolida* (LINNAEUS) [17])	:	:	s	:	:	:	b
a	:	:	m	:	:	:	:	*Ovatipsa coloba* (MELVILL)	-	-	-	-	-	-	-
a	:	t[6]	m	:	:	2	:	*Cribraria cribraria* (LINNAEUS)	1	:	:	*	:	v[3]	b

[1]) Pulo Penang, quoted by HIDALGO, 1906 (p. 46) possibly may refer to oblong *M. arabica*.

[2]) One broad *M. arabica* from Bhuket Island has been presented to the writer by Mr. Summers.

[3]) According to communications from the collectors.

[4]) *Lyncina nivosa* has a range extending with Puket and Mergui to Madras and Ceylon, but seems to be absent from the Andaman Islands.

[5]) The occurrence in Pulo Condor (ROCHEBRUNE) and Balabac (ELERA) needs confirmation, though it is possible.

[6]) One worn shell has been collected in the sandy banks of the Maeklong River in the province Ratburi far off the river's mouth: it must have been lost by natives.

[7]) "*Cypraea ocellata*" quoted by ROCHEBRUNE evidently is a misidentification of *Erosaria boivini*.

[8]) Simalur Island and Tizard Reefs are the localities most closely approaching the coast of Thailand.

[8a]) Classified as prospecies of *miliaris* and *felina* respectively by SCHILDER in The Veliger 7(3): pp. 179, 181 (1965).

[9]) *E. lamarcki* is represented by three shells in a small set of beach cowries collected at Ban Pe in January 1964, but it is absent in a large series of beach shells collected at Ban Pe in November 1964; though it seems improbable that *E. lamarcki* and *E. miliaris* live in the same area, the collector does not believe that

ADDITIONAL REMARKS

Most cowries are rather worn shells collected on sandy beaches in January and November 1964; only those coming from Ko Chang, Ko Raja Yai, and some few specimens collected along the west coast of Puket Island have been taken alive. Many parts of the coasts of Thailand are muddy so that no shells can be collected there, especially in the bay immediately south of Bangkok. Nevertheless, all specimens could be determined exactly, even if there was no trace of color left. In addition, many peculiar characters could be noted which deserve brief discussion.

The indicated range in length (L in millimeters) and in breadth (B in % of length) does not include extremes which are accidental in small populations and become more divergent the more the number of examined specimens increases, but it refers to *the two thirds of specimens approaching the mean*: this range of "usual" specimens approximately agrees with the official standard deviation and does not change much with an increasing number of specimens. The extreme range in very large series is expected to be about three times as wide.

Mauritia arabica: The western shells (L 42 - 55; B 59 to 64) are oblong ovate to callously ovate with rather blunt extremities and distinct dorsal lacunae, thus representing the typical Malayan *arabica* (= *intermedia* GRAY), but some specimens approach the Indian *dilacerata* SCHILDER & SCHILDER in markings. The eastern shells, however (L 45 - 61; B 62 - 66), are mostly deltoidal with the base acuminate behind, even in very callous specimens, and the dorsal longitudinal lines predominant so that the lacunae become obsolete: therefore they belong to the Chinese *asiatica* SCHILDER & SCHILDER (= *dilatata* COEN).

Lyncina nivosa: The only specimen from west of Kata (L 50; B 59, with 28 labial and 27 columellar teeth) is beach worn; but Mr. C. N. Cate, Los Angeles, possesses a fine shell (L 42; B 61, with 24:25 teeth) from Puket Island, collected by F. N. Crider.

Lyncina vitellus: The four live taken shells are pale fulvous.

Lyncina carneola: The beach worn shells are small and slender (L 24 - 29; B 56 - 66).

Luria isabella: There are no dark centers in the orange terminal spots.

Monetaria annulus: L 17 - 20 (extremes 13 - 26); B 70 to 78 (extremes 64 - 81); the ecotypes A : Q : H are represented in 54 : 34 : 12 per cent.

Monetaria moneta: L 18 - 24; B 73 - 80; mostly ecotype R with tendencies to E, C, and M; all fresh shells are suffused with rich yellow and their dorsal ring is mostly well visible.

Erosaria gangranosa: L 14 - 18; B 62 - 66; the blackish terminal spots are rather small, but the orange tips are well visible.

Erosaria caputserpentis: The shells from Kata seem to be smaller and less broad than those from Ko Chang (L 28 - 31 vs. 30 - 32; B 74 - 77 vs. 75 - 83).

Erosaria erosa: In adult shells B is 57 - 62, the lateral blotches are absent or obsolete in 40% and 4% on the right and left margin respectively, and the brown striae on the outer lip become distinct in 45%. In length there are evidently two groups of shells, the range being L 21 to 23 and 30 - 34; all specimens taken alive in western Thailand (Pf, K) are large, even those coming from Kata, while the beach shells from Kata (Pw) mostly are small with five large shells intermixed only, viz:

E. lamarcki from Puket Island need to be confused with shells from Ban Pe. The citation of "*lamarckii*" from the Gulf of Siam by MORLET seems not to be reliable. Therefore, on zoogeographical grounds one should list its occurrence in the Gulf of Thailand as doubtful.

[10]) The shell from Mergui identified as *turdus* by MARTENS, 1887, probably was a worn *lamarcki* as *turdus* does not live east of the Arabian Sea.

[11]) The shell from Mergui identified by MARTENS, 1887, as the East Australian *E. xanthodon* has been proved by VREDENBURG, 1919 (p. 147) to be *E. pyriformis*.

[12]) The occurrence of *E. saulae* in the Mergui Archipelago is rather discontinuous to the usual habitat from the Philippines to East Australia; nevertheless the habitat and the identification are correct.

[13]) The shell from Pulo Condor identified by ROCHEBRUNE, 1882 (p. 111) as *P. contaminata* may be *P. gracilis*. I have seen true *P. contaminata* from the Andaman Islands (Museum Calcutta) and from Tizard Reef (British Museum).

[14]) *Palmadusta ziczac* seems to be absent from the areas between the Andaman Islands, the south coast of Java, and the Philippines.

[15]) ROCHEBRUNE's *P. microdon* from Pulo Condor may be this species or *P. fimbriata;* in North Borneo both species occur (coll. LANCASTER).

[16]) The identification of *B. teres* by MARTENS (1883, called *tabescens*) is correct, as I have examined one specimen from Salang in the Museum of Berlin.

[17]) The distribution of *B. stolida* in the Indian Ocean was known hitherto only from areas west of Ceylon and Sabang (Sumatra), both included.

	L	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
live		-	-	-	-	-	-	-	-	-	-	3	1	4	4	1	5	2	2	1	1
beach		1	3	3	4	6	2	-	-	-	1	-	1	-	1	1	1	-	-	-	-

This difference cannot be due to chance.

Erosaria miliaris: Rather small (L 24 - 32, extremes 19 to 40; B 61 - 66) if compared with the usual L 28 - 38 from other areas; shape and aperture agree with the Malayan *E. miliaris differens* SCHILDER.

Erosaria lamarcki: The pure white spots on the greenish fulvous dorsum as well as other characters prove all Thailand shells to belong to the eastern subspecies *E. l. redimita* MELVILL: they are of usual length, but rather callous on the margins and on the base (L 28 - 31; B 65 to 70). There is no difference between the shells from the west coast and those said to come from Ban Pe.

Erronea walkeri: The specimen from Ban Pe (L 22; B 63; with 21:20 teeth) is bleached, but all structural characters agree with broad specimens from other localities; there are even traces of pale pinkish color between the posterior columellar teeth.

Erronea pyriformis: The five shells from the Gulf of Thailand are slender (L 23 - 31; B 57 - 61, instead of 60 - 63), but the lateral spots and the chestnut columellar teeth are typical.

Erronea pallida: The shape agrees with the Malayan race *E .p. insulicola* SCHILDER & SCHILDER, while *pallida* s. str. from the Arabian Sea is distinctly broader:

Karachi (Winckworth)	L 25 - 28	B 63 - 65
"Aden" (Schlesch) = Bombay? Karachi?	22 - 24	63 - 65
Bombay to Ceylon	22 - 27	63 - 66
Puket Island to Singapore	22 - 26	60 - 63
Gulf of Thailand	22 - 26	59 - 62
North coast of Java	21 - 24	60 - 63

In the Gulf of Thailand the other characters seem to be intermediate so that the extreme *E. p. insulicola* from Java seems to be a cline only.

Erronea onyx: The worn shells from Ban Pe seem to exhibit traces of the bluish white dorsal color of typical *E. onyx* s. str., whereas the shell from King Island in the Mergui Archipelago (British Museum) recalls *E. o. melanesiae* SCHILDER & SCHILDER: its dorsum is pale chestnut as in the western *E. o. adusta* (LAMARCK), but the structural characters approach more those of *E. onyx* s. str.

Erronea errones: The shells from Puket are slightly smaller and broader (L 18 - 24; B 56 - 59) than those from Ban Pe (L 20 - 24; B 55 - 57); but there is even a small difference between the 115 shells collected south west of Ban Pe on November 14, 1964 (L 20 - 24; B 55 - 58) and the 142 shells collected between Ban Pe and Ban Klaeng Lang two days earlier (L 20 - 25; B 54 - 57), as even the medians are slightly different (22/56 vs. 23/55 respectively). The dorsum is mostly worn, but in most less rolled specimens the dorsal blotch is well visible (it may be absent in about 10% of the shells). The anterior terminal spots are mostly present; the percentages of absent, obsolete, small, distinct, large, and very large spots, at least on the labial side, are in:

18 shells from Puket Island	11	0	17	39	33	0
75 shells from Ban Pe: S. W. coast	7	3	20	37	29	4
127 shells from Ban Pe: East coast	6	3	13	32	40	6
220 Total	6	3	16	34	36	5

Erronea caurica: The three beach shells from Puket Island are rather small and slender (L 25 - 32; B 49 - 54), hardly margined, with wide aperture, short columellar teeth, and reduced fossula.

Purpuradusta gracilis : L 14 - 17; B 59 - 63; dorsum worn so that the presence or absence of the dorsal blotch cannot be stated; but the lateral spots and terminal patches are well recognizable, they extend to the base and the outlets respectively; the terminal patches are dark brown, not pink.

Generally we can observe that the beach worn specimens collected by a native west of Kata are distinctly smaller than those taken alive at Kata as well as at other localities along the west coast of Thailand: thus in

Mauritia arabica	L in Pf:	42 - 45	in Pw:	32 - 39
Monetaria annulus		22 - 25		17 - 20
Monetaria moneta		23 - 25		16 - 21
Erosaria caputserpentis		30 - 32		28 - 31
Erosaria erosa (see above)		31 - 35		21 - 30

These differences prove that the beach shells (Pw) lived in an environment other than the usual shells taken alive (Pf).

SUMMARY

Almost one thousand cowrie shells from the hitherto hardly explored coasts of Thailand proved the occurrence of 18 additional species on the west coast (Andaman Sea) and 5 in the Gulf of Thailand, not reported before. The Indian *Erosaria lamarcki redimita* (MELVILL) seems to pass the Malacca Strait as far as to the innermost Gulf of Thailand, where its eastern representant, *E. miliaris*

(GMELIN) is far more frequent; *Erronea pallida* (GRAY) also ranges from the Arabian Sea to the Gulf of Thailand, where it seems to connect morphologically *E. pallida* s. str. (Persian Gulf to Ceylon) with *E. p. insulicola* SCHILDER & SCHILDER from northern Java, as the intermediates from the Andaman Sea and the Singapore area also do.

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ERRATA

The name AKLEISTOSTOMA on page 236 of The Veliger, vol. 7, no. 4 should have been printed in italics, as *Akleistostoma,* since GARDNER, 1948, used the term "sectio" in the sense of the taxon infragenus of other authors, i.e. a taxon of a lesser order than a subgenus (as THIELE did in his Handbuch der systematischen Weichtierkunde, Jena, 1929), and not as a high taxon between "subdivision" and "superfamily" indicated by our use of the CAPITALS. We apologize for having introduced this confusion through an error in editorial interpretation.

R. S. *Ed.*